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IS : 6661 - 1972

Indian Standard
SPECIFICATION FOR
POTASSIUM SCHOENITE

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**AMENDMENT NO. 1 MAY 2012
TO
IS 6661 : 1972 SPECIFICATION FOR
POTASSIUM SCHOENITE**

[Page 4, clause 3.2, second line] — Substitute
'quantity' for 'mass'.

(FAD 7)

Reprography Unit, BIS, New Delhi, India

Indian Standard

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Indian Standard

SPECIFICATION FOR POTASSIUM SCHOENITE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 8 September 1972, after the draft finalized by the Acids and Fertilizers Sectional Committee had been approved by the Chemical Division Council.

0.2 Potassium schoenite is a double salt having the composition $K_2SO_4 \cdot MgSO_4 \cdot 6H_2O$. It is manufactured from salt bitterns.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of test for potassium schoenite used as a fertilizer.

2. REQUIREMENTS

2.1 Description — The material shall be crystalline, white or light grey in colour, and shall be free from visible contamination with clay and grit.

2.2 Moisture — Unless otherwise agreed to between the purchaser and the supplier, the material shall contain not more than 1.5 percent by mass of moisture when tested as prescribed in Appendix A.

2.3 The material shall also comply with the requirements given in Table 1 when tested according to the methods prescribed in various parts of IS : 6092† and in Appendix B. Reference to clauses of Appendix B and to the relevant part of IS : 6092† is given in col 4 and 5 of Table 1.

*Rules for rounding off numerical values (*revised*).

†Methods of sampling and test for fertilizers:

Part I Sampling

Part II Determination of nitrogen

Part III Determination of phosphorus

Part IV Determination of potassium

Part V Determination of trace elements

Part VI Determination of impurities

TABLE 1 REQUIREMENTS FOR POTASSIUM SCHOENITE

(Clause 2.3)

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO	
			Cl No. in Appendix B	Part of IS : 6092*
(1)	(2)	(3)	(4)	(5)
i)	Potash content (as K_2O), percent by mass (on dry basis), <i>Min</i>	23.0†	—	IV
ii)	Magnesium oxide (as MgO), percent by mass (on dry basis), <i>Max</i>	10	B-3	—
iii)	Total chlorides (as Cl), percent by mass (on dry basis), <i>Max</i>	2.5	B-4	—
iv)	Sodium (as $NaCl$), percent by mass (on dry basis), <i>Max</i>	1.5	—	VI

*Methods of sampling and test for fertilizers:

Part IV Determination of potassium.

Part VI Determination of impurities.

†Tolerance of — 0.2 unit for this requirement shall be permissible.

3. PACKING AND MARKING

3.1 The material shall be packed as agreed to between the purchaser and the supplier.

3.2 The packages shall be closed securely and marked with the name of the manufacturer; name and mass of the material; and recognized trade-mark, if any.

3.2.1 The packages may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. SAMPLING

4.1 The method of drawing representative samples of the material shall be as prescribed in IS : 6092 (Part I)-1971*.

*Methods of sampling and test for fertilizers: Part I Sampling.

APPENDIX A

(Clause 2.2)

DETERMINATION OF MOISTURE

A-1. PROCEDURE

A-1.1 Weigh accurately about 10 g of the material in a petri dish and dry in an oven at $50 \pm 2^\circ\text{C}$ to constant mass.

A-2. CALCULATION

A-2.1 Moisture, percent by mass = $\frac{100 M_1}{M_2}$

where

M_1 = loss in mass in g of the material on drying, and

M_2 = mass in g of the material taken for the test.

APPENDIX B

(Clause 2.3)

METHODS OF TEST FOR POTASSIUM SCHOENITE

B-1. QUALITY OF REAGENTS

B-1.1 Unless specified otherwise, pure chemicals and distilled water (see IS : 1070-1960*) shall be used in tests.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the results of analysis.

B-2. PREPARATION OF SAMPLE

B-2.1 Crush 50 g of the material to pass through 500-micron IS Sieve, Dry to constant mass as in **A-1.1** to obtain the *prepared sample* and keep in a clean glass-stoppered weighing bottle in a desiccator for subsequent tests.

B-3. DETERMINATION OF MAGNESIUM OXIDE

B-3.0 Principle of Method — Magnesium is determined complexometrically using EDTA.

*Specification for water, distilled quality (*revised*).

B-3.1 Reagents

B-3.1.1 Dilute Hydrochloric Acid — approximately 5 N.

B-3.1.2 Standard Calcium Solution — Weigh 1.000 g of calcium carbonate, dried previously at 120°C, and dissolve in the minimum quantity of dilute hydrochloric acid. Dilute the solution to one litre in a volumetric flask. One millilitre of this solution is equivalent to 0.243 2 mg of magnesium.

B-3.1.3 Ammonium Chloride — Ammonium Hydroxide Buffer Solution — Dissolve 67.5 g of ammonium chloride in a mixture of 570 ml of ammonium hydroxide (sp gr 0.90) and 250 ml of water. Dissolve separately a mixture of 0.931 g of disodium ethylenediamine tetra-acetate dihydrate (EDTA) and 0.616 g of magnesium sulphate ($\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$) in about 50 ml of water. Mix the two solutions and dilute to one litre.

B-3.1.4 Eriochrome Black T Indicator Solution — Dissolve 0.1 g of eriochrome black T in 20 ml of methanol. This solution shall be used for not more than a week.

B-3.1.5 Standard Disodium Ethylenediamine Tetra-acetate (EDTA) Solution — Weigh 3.72 g of disodium ethylenediamine tetra-acetate dihydrate in water and dilute in a volumetric flask to one litre. The solution shall be standardized frequently against standard calcium solution following the procedure given in **B-3.2**.

B-3.2 Procedure

B-3.2.1 Sample Solution — Weigh accurately about 10 g of the *prepared sample*, dissolve in water and dilute to 100 ml in a volumetric flask with water. This solution (*sample solution*) shall be used for determination of magnesium (**B-3.2.2**).

B-3.2.2 Dilute 10 ml of sample solution (B-3.2.1) with water to one litre in a volumetric flask. Transfer 100 ml of the solution into a conical flask, add 5 ml of ammonium chloride — ammonium hydroxide buffer solution, 5 drops of eriochrome black T indicator solution and titrate against standard EDTA solution to a pure blue end point. Note the volume of the standard EDTA solution used in the titration.

B-3.3 Calculation

$$\begin{array}{l} \text{Magnesium oxide (as MgO),} \\ \text{percent by mass} \end{array} = \frac{100 \times 165.8 \text{ } V N}{W}$$

where

V = volume in ml of standard EDTA solution used in titration,

N = magnesium equivalent in g per millilitre of standard EDTA solution, and

W = mass in g of the *prepared sample* taken for the test in **B-3.2.1**.

B-4. DETERMINATION OF TOTAL CHLORIDE

B-4.0 Principle of Method — The chlorides are titrated against standard silver nitrate solution using potassium chromate as indicator.

B-4.1 Reagents

B-4.1.1 Standard Silver Nitrate Solution — 0.1 N.

B-4.1.2 Potassium Chromate Indicator Solution — 5 percent.

B-4.2 Procedure — Weigh accurately about 10 g of the *prepared sample* (**B-2**) and transfer into a 500-ml beaker. Add about 250 ml of water and warm gently for about 20 minutes. Cool and dilute the solution to 500 ml in a volumetric flask. Allow to stand for 5 minutes. Transfer with a pipette 100 ml of the clear solution into a conical flask and titrate with standard silver nitrate solution using 1 ml of potassium chromate indicator solution.

B-4.3 Calculation

$$\text{Total chloride (as Cl)}, \text{ percent by mass} = \frac{17.73 VN}{M}$$

where

V = volume in ml of standard silver nitrate solution used for the titration,

N = normality of standard silver nitrate solution, and

M = mass in g of the *prepared sample* taken for the test in **B-4.2**.

INDIAN STANDARDS

ON

FERTILIZERS AND RELATED PRODUCTS

IS:

- 294-1962 Superphosphate (*revised*)
- 799-1955 Ammonia, liquor, technical
- 826-1967 Ammonium sulphate, fertilizer grade (*first revision*)
- 853-1964 Bone-meal, raw (*revised*)
- 1013-1972 Triple superphosphate (*first revision*)
- 1014-1956 Bone-meal, steamed
- 1023-1956 Dicalcium phosphate
- 1114-1964 Ammonium chloride, fertilizer grade (*revised*)
- 1304-1963 Glossary of terms used in fertilizer trade and industry (*revised*)
- 2256-1972 Ammonium sulphate nitrate (*first revision*)
- 2409-1971 Calcium ammonium nitrate (*first revision*)
- 2764-1964 Potassium sulphate, fertilizer grade
- 2779-1964 Potassium chloride (muriate of potash), fertilizer grade
- 3029-1964 Castor seed cake for fertilizer purposes
- 4830-1968 Ammonium phosphate sulphate (16-20-0)
- 5406-1969 Urea, fertilizer grade
- 5407-1969 Ammonium phosphate sulphate, granular (19-5-19-5-0)
- 5408-1969 Fused calcium magnesium phosphate
- 5409-1969 Agricultural liming materials
- 5985-1971 Code of practice for handling and storage of bagged fertilizers
- 6046-1971 Gypsum for agricultural use
- 6092 (Part I)-1971 Methods of sampling and test for fertilizers: Part I Sampling
- 6092 (Part II)-1971 Methods of sampling and test for fertilizers: Part II Determination of nitrogen
- 6092 (Part III)-1971 Methods of sampling and test for fertilizers: Part III Determination of phosphorus
- 6092 (Part IV)-1971 Methods of sampling and test for fertilizers: Part IV Determination of potassium
- 6092 (Part V)-1971 Methods of sampling and test for fertilizers: Part V Determination of trace elements
- 6092 (Part VI)-1971 Methods of sampling and test for fertilizers: Part VI Determination of impurities
- 6448-1971 Diammonium phosphate

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Industrial gases	Water and water treatment
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Lac and lac products	
Leather, leather goods and leather dressings	

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